

AMENDMENTS TO THE CLAIMS

1 to 38 (Cancelled)

39. (Currently Amended) A device for applying a plurality of microdroplets onto a substrate, comprising:

a plurality of nozzle orifices in a first surface of a dosing head;

walls for defining a liquid column of a medium to be dosed on each nozzle orifice;

a pressure chamber which is adapted to be filled with a buffer medium and which is arranged in such a way that said buffer medium can simultaneously be used for applying a pressure to ends of the liquid-columns, which are spaced apart from the nozzle orifices;

a pressure generator for applying a pressure to said buffer medium which in turn applies pressure to the ends of the liquid columns causing in such a way that a plurality simultaneous ejection of microdroplets through the nozzle of orifices will simultaneously be applied onto the substrate through said plurality of nozzle orifices; and

liquid reservoirs for the media to be dosed, which are in fluid communication with the liquid columns on the nozzle orifices and comprise reservoir openings in a second surface of said dosing head opposite to said first surface,

wherein the reservoir openings are outside of and spaced from the pressure chamber.

40. (Previously presented) A device according to claim 39, wherein the pressure generator is defined by a displacement diaphragm and an associated actor.
41. (Previously presented) A device according to claim 40, wherein the buffer medium is air and wherein the pressure generator includes a compressed-air supply device which is provided with a valve and which is in fluid communication with the pressure chamber.
42. (Previously presented) A device according to claim 39, wherein the pressure generator comprises a tappet and an actor, wherein the actor is configured to actuate the tappet to apply a pressure to the buffer medium.
43. (Previously presented) A device according to claim 39, wherein the walls for defining a liquid column on each nozzle orifice include a channel which leads to a respective nozzle orifice and which is adapted to be filled by a capillary effect.
44. (Previously presented) A device according to claim 39, wherein the liquid reservoirs are connected via fluid lines to the walls for defining a liquid column, said fluid lines being implemented such that they permit capillary filling of the means for defining a liquid column.
45. (Previously presented) A device according to claim 39, comprising in addition a vent port for venting the pressure chamber.
46. (Previously presented) A device according to claim 39, wherein the liquid reservoirs are formed in a first main surface of the dosing head, said first main surface having arranged thereon a cover plate provided with one or a plurality of vent holes for the liquid reservoirs whose cross-sectional area is smaller than that of the liquid reservoirs.
47. (Previously presented) A device according to claim 39, comprising in addition a cooler for cooling the liquid in the liquid reservoirs.

48. (Previously presented) A device according to claim 39, wherein the surface of the dosing head having the nozzle orifices formed therein is provided with a cover layer having an opening in the area of the nozzle orifices.
49. (Previously presented) A device according to claim 39, wherein the dosing head is provided with recessed portions on its lateral edges in the dosing-head surface having the nozzle orifices formed therein, said recessed portions being brought into engagement with a holding device.
50. (Previously presented) A device according to claim 49, wherein the holding device is additionally implemented as a device for applying a supply so as to fill the liquid reservoirs provided in the device.
51. (Previously presented) A device according to claim 39, additionally comprising trench structures which surround respective nozzle orifices, said trench structures being implemented for binding by means of capillary forces superfluous liquid on the surface having the nozzle orifices formed therein.
52. (Previously presented) A device according to claim 39, wherein the plurality of nozzle orifices and the walls for defining a liquid column are micromechanically formed in a silicon substrate.
53. (Previously presented) A device according to claim 52, wherein also the liquid reservoirs and the fluid lines are formed, at least partially, in the silicon substrate.
54. (Previously presented) A device according to claim 52, wherein the pressure chamber is defined by a recess formed in an intermediate plate which is applied to the silicon substrate.

- 55. (Previously presented) A device according to claim 54, wherein the intermediate plate is additionally patterned so as to increase the capacity of the liquid reservoirs.
- 56. (Previously presented) A device according to claim 39, wherein the liquid reservoirs are formed in the first surface of the dosing head, said liquid reservoirs having arranged therein capillary structures.
- 57. (Previously presented) A device according to claim 39, wherein the ends of the liquid-columns, which are spaced apart from the nozzle orifices, are fluid insulated from each other by the buffer medium.
- 58. (Cancelled)